



McCullough Research

6123 S.E. Reed College Place
Portland, Oregon 97202

Voice: 503-771-5090
Fax: 503-771-7695
Internet: robert@mresearch.com

MEMORANDUM

Date: June 21, 2002

To: McCullough Research Clients

From: Robert McCullough

Subject: PerotSystems Discovery

Yesterday, PerotSystems posted 3,740 pages of documents pertaining to PerotSystems staff and associates marketing gaming services in 1997 and 1998.¹ The documents included correspondence, presentations, proposals, and internal California Power Exchange materials.

The consultants associated with PerotSystems offered advice on techniques to game the ISO and PX to a variety of market participants in the California market. One experienced energy lawyer for the Pacific Northwest has coined the phrase, “crime school” for the service they offered to Southern

¹Sixteen pages were unavailable due to “broken links.”

California Edison², Pacific Gas and Electric³, Enron, Reliant⁴, PGE, PacifiCorp, and BPA⁵. Other proposals were made to BC Hydro, BPA, PacifiCorp, and Public Service of Colorado.⁶

The presentations were aggressive – even by Enron’s standards:

Gaming may be a dirty word to FERC and the California commission, but the sooner the market clears out the distortions, the better it works for everyone. The "gaming" defeats the flaws in the system and ultimately removes the players or features that lead to market distortions. There may be ethical issues related to "the end justifying the means" but there is a large region of opportunities between what is ethically viable (profitable) and ethically dangerous (illegal). It is prudent to understand the full spectrum of possibilities, and through the understanding of market dynamics that it provides, to select that appropriate subset of strategies which best serve the long-term interests of PG&E.⁷

As part of their marketing program they offered a sampler of gaming techniques and a promise of exclusivity:

The solution is to make us unable to provide any other entity the tools/capabilities EI will have. We can solve the problem by making the tool hyper-exclusive to EI to the extent that we cannot build another model for that purpose or containing those capabilities. Further, we could not even deluge or apply our knowledge of the unique and California specific protocol (nor their tactical implications) to any other organization/entity.⁸

There is little question that the marketing of the “Crime School” began even before the ISO and PX

²SCE's UDC Business in the Restructured California Energy Market, Dariush Shirmohammadi Paul Gribik, Al Suding, Wednesday, March 19, 1997 PSC 007431.

³Operations and Strategies in a Tight Pool, no author, no date, PSC 007068.

⁴Workshop on California Markets, June 26, 1998. PSC007112. This presentation appears to have preceeded the somewhat more complete presentation provided by Reliant to the California Senate Select Committee.

⁵On one occasion, George Backus invites Rich Davis, a PGE executive, to BPA to see their model in action. PSC-PAC 000295.

⁶PSC 005394.

⁷Letter to Jonathon Jacobs, PG&E, July 21, 1997, PSC 007517. The letter starts out: “I am sending this to you via the fax because it may contain information that would require you to destroy it or to black out selected sections after you have read it. (I can edit it as you may request and then send an email version.)”

⁸PSC 000004.

commenced operations.⁹ In November of 1997, PerotSystems adopted an “Ethics Wall” in response to complaints from the California Power Exchange concerning their marketing to market participants. From the materials provided yesterday, it is clear that the “Ethics Wall” was easily breached and the presentations to market participants continued.

The slides from an August 1997 presentation present a daunting forecast of the California energy crisis:

Micro-Bids As Probes

If You Are Marginal (Play Outages) and Have Other Plants in Queue

Use Model to Determine (Without Signals) That Generation Marketing, or UDC Should Take Strategy Lead to Avoid “Conflict” of Financial Interests.

Combined Generation/UDC Over/Under-Book Strategies

External 3rd Party Alliance (Collaborator) on Bids and Generation Ownership.¹⁰

The slide entitled “Combative Moves” describes generator dispatch on January 17, 2000 very closely:

Congestion iteration makes and relieves constraint at cost to competitor.

If real-time price drops due to ancillary-service bidding convolution, then have outage.

In intra-zonal market, occasionally high-bid constrained-on unit. If hit for LT. contract, make money by never running plant - change internal dispatch.¹¹

A number of slides belong to presentations that did not identify the target audience. This slide, for example, describes a number of strategies later presented in the Yoder/Hall memo.

Disguising the Strategy

P1 can disguise this strategy in different ways, e.g.

- Schedule more load in the forward market than it expects to serve in real-time
- Schedule increased generation in the forward market to serve the increased load
- If P1 wants to dump energy on the real-time imbalance energy market,, it can do so from its unrealized load
- If P1 does not want to dump energy on the real-time imbalance energy market, it can have an

⁹Enron received one presentation on January 13, 1998. PSC 007228.

¹⁰PSC-PAC 000193.

¹¹PSC-PAC 000192.

unscheduled outage of generation in real-time to offset its unrealized load¹²

The first bullet, of course, is the approach Enron adopted in Fat Boy.

Enron received several presentations. The first occurred on January 13, 1998. Others occurred during 1998.¹³ Silver Peak was identified to Enron on at least one occasion.¹⁴

A party with generation on both sides of a small interface could have devised a strategy to control the PX energy prices in CA under these protocols. For example, the Silverpeak intertie has a limit of around 30 MW. Suppose that a party bids to sell 100 MWh in the PX auction at \$0/MWh. It would likely win the right to sell 100 MWh. That party could schedule an import of 35 MWh at Silverpeak and 65 MWh of generation in CA. If it did not provide a decremental adjustment bid on its 35 MWh import, the ISO would reduce the import by 5 MWh and set a default usage charge of \$250/MWh on the intertie. Under the old PX protocols, the energy price at Silverpeak would be set to \$0/MWh. Since the difference in energy price across the Silverpeak intertie must be equal to the usage charge, the energy price in CA would have been set at \$250/MWh. In this way, the party could ensure that it received \$250/MWh for its 65 MWh generated in CA.¹⁵

The Silver Peak strategy was offered on numerous occasions. For example the “Transmission Pricing for ISO Applications” presentation by Dariush Shirmohammadi was offered on behalf of PerotSystems on June 19, 1997.¹⁶

Other strategies were also mentioned:

If ECT-associated energy supplies or loads in Northern California help create congestion, ECT-associated energy supplies in Southern California could take advantage of the price increases due to that congestion. Both loads and supplies can be strategically used to create local markets with added

¹²PSC 007499.

¹³Letter to Rich Davis, April 9, 1998, PSC-PAC 000226.

¹⁴On May 24, 1999 Enron scheduled 2,900 megawatts across a 57 kV line between California and Nevada in an attempt to profit from ISO congestion fees. They were later assessed \$25,000 by the California Power Exchange, but allowed to keep the proceeds. No refunds to injured parties were assessed.

¹⁵Letter to Rich Davis at PGE, PSC 007639.

¹⁶PSC007313.

ECT profitability.¹⁷

This, of course, is a precis of the Cong Catcher scheme described in Enron's internal documents.

The formal proposal to Enron was presented on February 16, 1998.¹⁸

One defense that PerotSystems has mentioned to the press has been the fact that none of these strategies were secret.

We have alerted the ISO and PX to this particular gap and it has been "closed."

Without going into details, other gaps do exist in the way that the ISO manages intrazonal congestion in the forward markets and rules of managing imbalances in real-time market.¹⁹

The meaning of "secret" in the context of the sentences above is difficult to understand. If the proposed meaning is "known, but hidden," these materials were not secret at the PX and the ISO since the ISO and PX were not aware of the problems. If the colloquial meaning is used, these ideas were clearly secret, in the sense that few knew them and market participants would have to pay to find them out.

A second defense offered within the PerotSystems documents is that the marketing of these services was quite poorly undertaken. A statement of Dr. George Backus includes the statement that

Although I marketed my simulation consulting services to various entities, these efforts were all unsuccessful and no software program capable of performing CA market gaming, or the analysis thereof, was ever developed let alone provided to any entity. All of my efforts to market together with Perot Systems were also unsuccessful.²⁰

¹⁷PSC 007640.

¹⁸Proposal to Enron, Prepared by Perot Systems Corporation (PSC) In partnership with Policy Assessment Corporation (PAC), February 16, 1998, PSC-PAC 000296.

¹⁹PSC-PAC 000227.

²⁰This page does not appear to have been numbered. It follows PSC-PAC 000310.